Chapter 5

Removal Site Evaluations

This chapter describes the process for conducting a removal preliminary assessment (PA) and, if necessary, a removal site inspection (SI) for non-emergency situations. Module A describes readily available information that should be reviewed during the PA to identify the nature and source of the release, evaluate the threats or potential threats to human health and the environment, and determine if a removal action is required. Module B describes the types of additional activities that may be conducted during an SI to characterize the release more fully and obtain adequate data for response determination. Module C highlights how to determine if a removal site evaluation (RSE) indicates that a removal action is necessary. The information in this chapter applies to time-critical and non-time-critical removal actions.

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5.1 Introduction

5.1 .1 Background

Following the collection of key information about a release or threat of release (see Chapter 3), the Environmental Restoration Program Manager (ERPM) may determine that additional information is necessary to assess the release. Before conducting any removal action, section 300.415 of the NCP requires that the results of an RSE be reviewed to determine if a removal action is appropriate. The National Contingency Plan (NCP) section 300.410 describes the RSE and its components-the removal PA and removal SI.

You should use this chapter to complete an RSE for non-emergency situations. Module A of Chapter 4 describes RSE activities for emergency situations. After completing the RSE, the ERPM should evaluate the information to determine the need for and urgency of a removal action.

5.1.2 Major Requirements

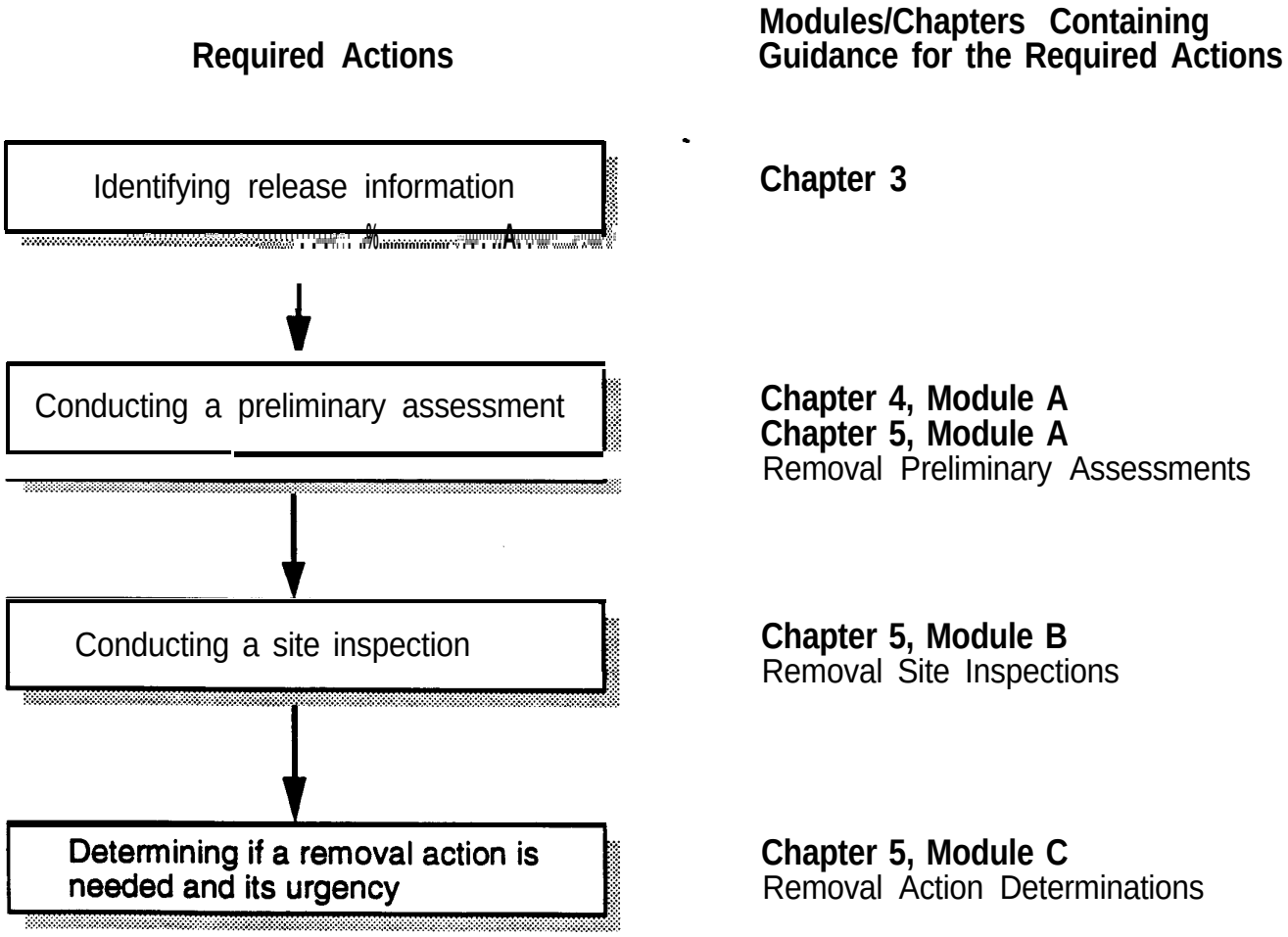
This chapter contains three modules (see Figure 5.1) as follows:

- **Module A: Removal Preiiminary Assessments.** This module describes readily available information that should be reviewed during a PA to identify the nature and source of the release, evaluate the threats or potential threats to human health and the environment, and determine if a removal action is required.

- **Module B: Removal Site** Inspections. This module describes the types of additional activities such as sampling and analysis that may be conducted during an SI to more fully characterize the release and obtain adequate data for response determination.

- **Module** C: **Removal Action Determinations.** This module highlights how to determine if an RSE indicates that a removal action is necessary.

Figure 5.1
Overview of Chapter 5: Removal Site Evaluations



5.2 Module A: Removal Preliminary Assessments

5.2.1 Introduction

Unless a classic emergency exists (e.g., fire/explosion), key information about a release or threat of release (see Chapter 3) is usually not sufficient to fully determine the need for or urgency of a removal action. Therefore, the ERPM **should** use key information about the release or threat of release to begin an RSE. A removal PA, the first step in an RSE, is based on readily available information such as written reports, photographs, and interviews with witnesses. If additional information is needed, a removal SI should be completed (see Module B). Section 300.410 of the NCP describes the RSE process.

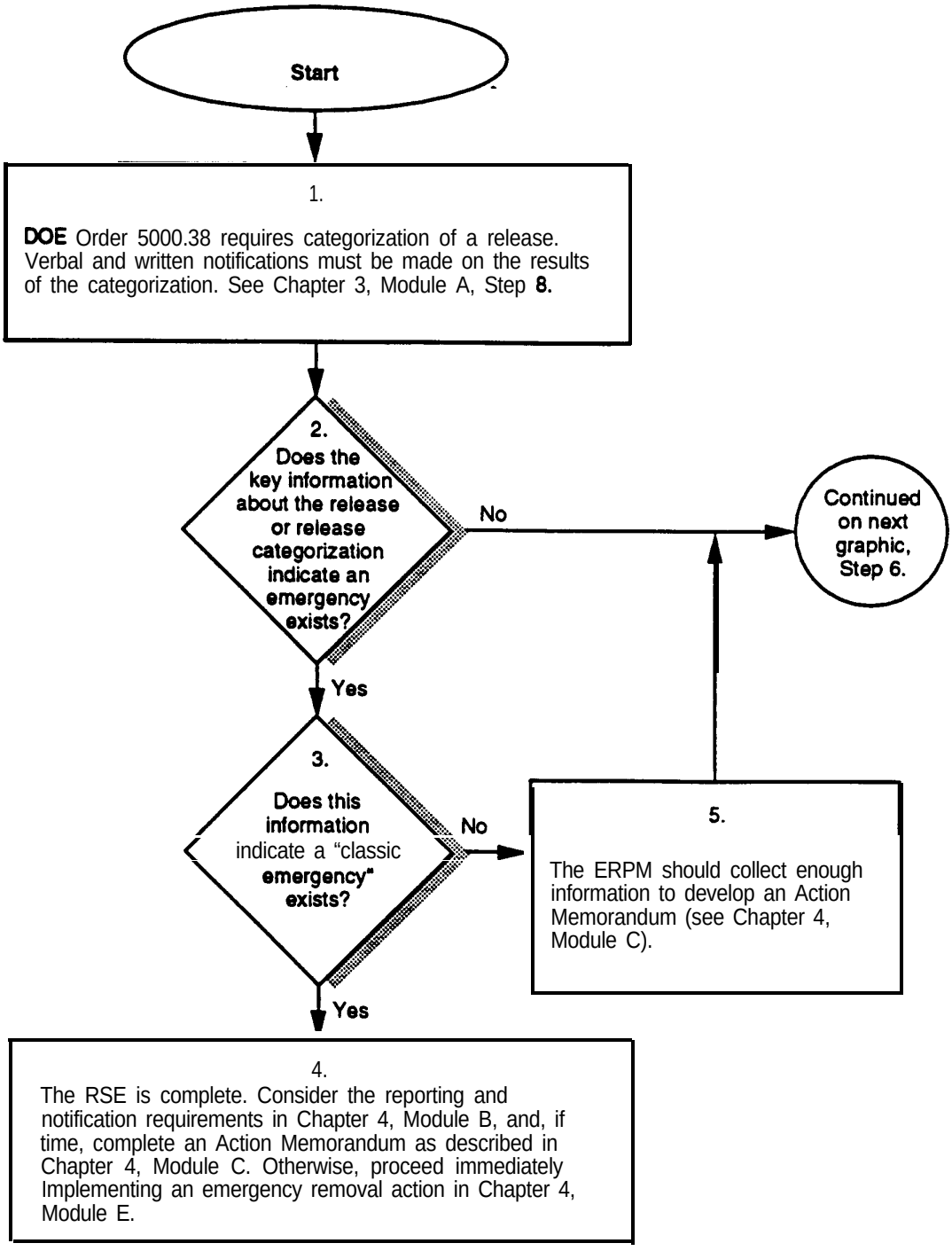
5.2.2 Milestones

In completing a removal PA, the ERPM should ask the following questions:

- **Can the source and nature of the release or threat of release be identified?**
- **Can the nature of the threat to public health be described?**
- **Can the magnitude of the threat be described?**
- **Is another party already undertaking an appropriate response?**
- **Has other relevant information about the release been considered?**
- **Has sufficient information been collected to determine if a removal action is warranted, or is a removal SI necessary?**

The following flowchart guides you through the process of conducting a removal PA.

Figure 5.2(1)
Removal Preliminary Assessments



5.2.3 Removal Preliminary Assessments

Step 1 As described in Chapter 3, Module A, Step 7, the U.S. Department of Energy (DOE) has established its own prioritization scheme for releases of hazardous substances, or pollutants or contaminants. The ERPM should refer to DOE Order 5000.3B (summary of order is presented in Appendix A of this guidance) to determine if a release should be categorized as an emergency, or unusual occurrence, or off-normal occurrence. The categorization of a release under this order may be a good indicator of whether a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is appropriate.

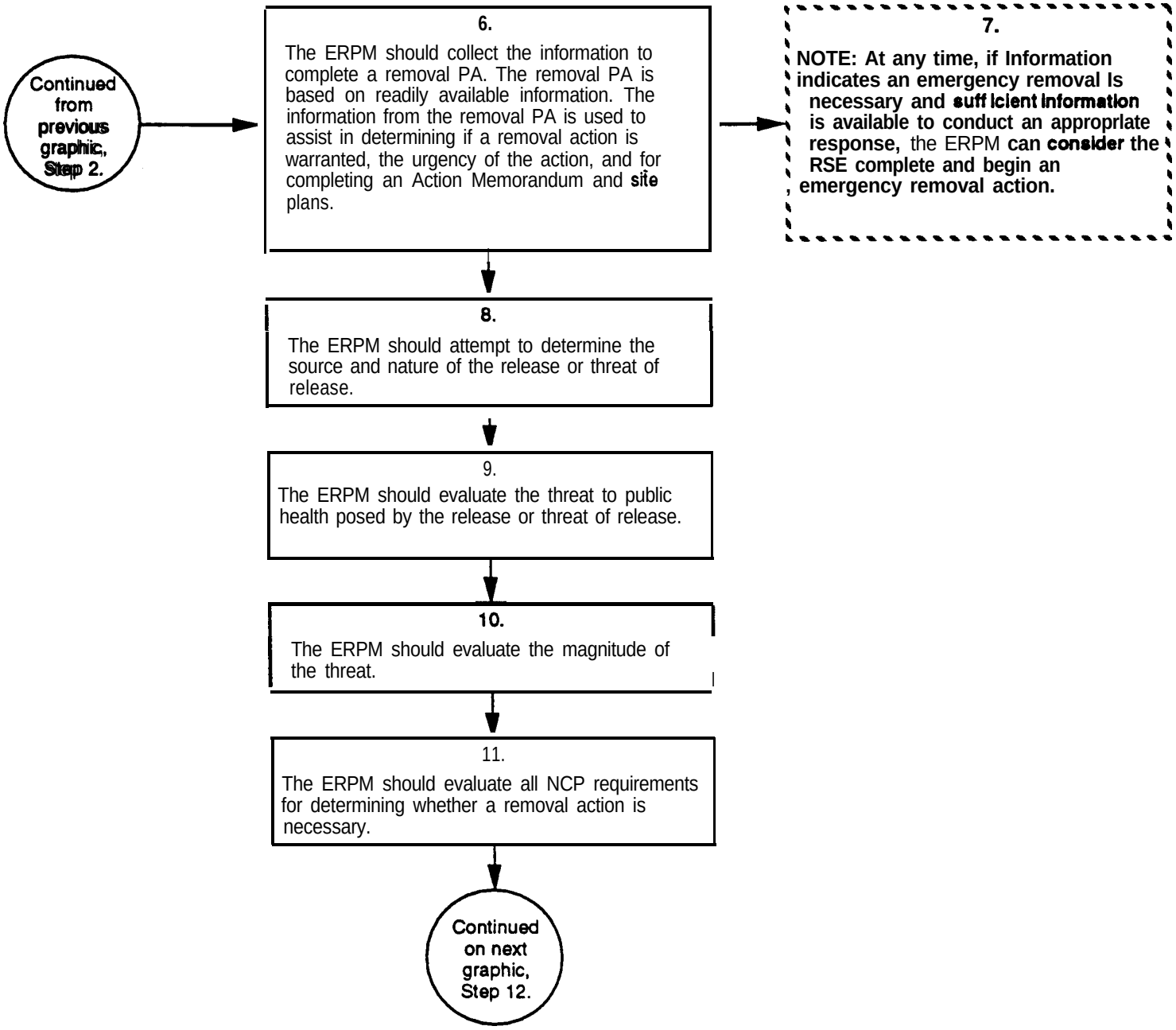
Step 2 Frequently, the key information that is gathered about a release or threat of release (see Chapter 3) will be sufficient to determine that an emergency exists. For information on conducting RSEs during emergencies, the ERPM should refer to Chapter 4, Module A.

Step 3 A classic emergency is generally indicated by an on-going fire or explosion often with reports of injuries, deaths, or evacuations. The ERPM should exercise best professional judgment in determining whether the initial key information indicates that an emergency exists (see Chapter 4, Module A).

Step 4 When the key information indicates that an emergency situation exists, then the RSE is complete and an emergency removal action should be initiated. In these instances, the reporting and notification requirements should be completed immediately (see Chapter 4, Module B), and an Action Memorandum completed as quickly as practical (see Chapter 4, Module C). In extremely urgent situations, this documentation can be prepared after the immediate threats have been abated.

Step 5 Regardless of whether an emergency situation exists, the ERPM should always collect sufficient information to develop an Action Memorandum, which documents DOE's rationale for its response plan (see Chapter 4, Module C for the requirements for completing an Action Memorandum and Appendix B for an outline and model Action Memorandum).

Figure 5.2(2)
Removal Preliminary Assessments



Step 6 Depending on the characteristics of the release and the obvious urgency of the situation, a removal PA could take only one hour or it could take as long as several weeks. As described by section 300.410 of the NCP, the ERPM should base the removal PA on readily available information to determine the need for and urgency of a removal action. Information for a removal PA may include collecting or reviewing data on site management practices, reviewing photographs, conducting literature searches, and performing off-site reconnaissance.

Step 7 Due to changes in site conditions or as additional information regarding a release or threat of release is collected, the ERPM may determine that an emergency situation exists or has developed. If this occurs, an emergency removal action may begin immediately (see Chapter 4). Refer to Step 12 for information on documenting a PA or RSE.

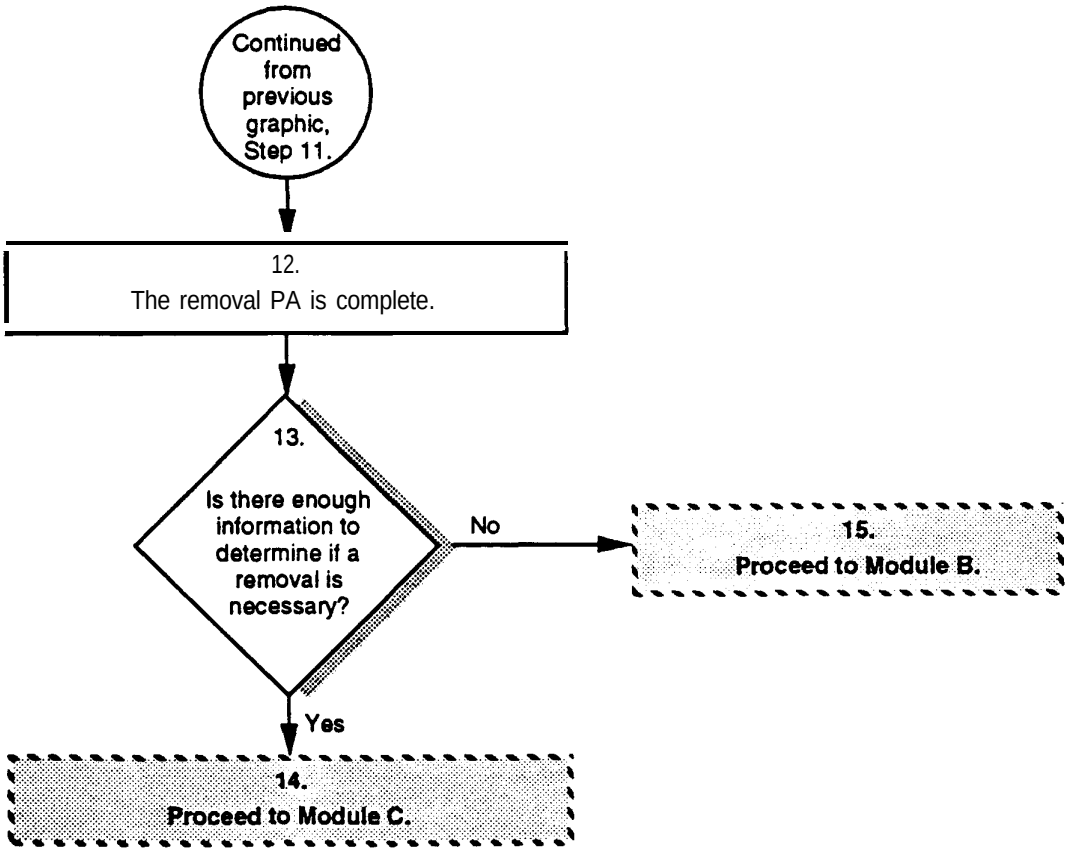
Step 8 Information regarding the source of the release or threat of release is needed to begin evaluating the risk to human health, welfare, and the environment. This information includes identifying the specific hazardous substance(s) present, impacted media, and actual or potential exposure.

Step 9 The ERPM should determine risks to human populations and the environment. Risks include direct human exposure or fire or explosion. This evaluation may also indicate the need for evacuating facility personnel or local populations. Facility plans developed in accordance with DOE Order 5500. 1B, "Emergency Management System,'* should be followed in these circumstances.

Step 10 The ERPM should use best professional judgment to ensure that measures taken during a removal action are appropriate for the magnitude of the threat posed by the release or threat of release. In determining the magnitude of the threat, the ERPM should pay careful attention to such factors as possible food chain contamination and threats to sensitive ecosystems such as wetlands. This evaluation will assist the ERPM in determining if the RRT or NRT should be involved.

Step 11 Section 300.415(b) of the NCP describes the factors that must be considered in determining whether a removal action is appropriate. Information gathered during the removal PA should be reviewed in relation to these factors. A removal action should not be conducted unless one or more of these NCP removal action factors are met (see Appendix C).

Figure 5.2(3)
Removal Preliminary Assessments



Step 12 At the conclusion of the removal PA, the ERPM should assemble and document the information collected in accordance with section 300.410(c) of the NCP, which describes the removal PA. If a removal action is required, this documentation along with any relevant data must be included in the Administrative Record. While the NCP and U.S. Environmental Protection Agency (EPA) guidance do not prescribe the format for documenting a removal PA, a written record of the data and the results and basis of the decision should be prepared and included in the Administrative Record file. Documenting the results of a removal PA should not impede taking action to respond at a site. The process for documenting a removal PA or RSE may be clarified in a Federal Facility Agreement (FFA).

Step 13 If the readily available information gathered during the removal PA is not sufficient to determine whether one or more of the criteria in section 300.415(b) of the NCP has been met, then the ERPM could decide that more data and analysis is requited to make a decision. In this case, the ERPM should initiate an SI.

Step 14 Using the information from the removal PA, the ERPM should proceed to Module C to make the final determination of the need for a removal action. Module C will also assist the ERPM in determining the urgency of a removal action.

Step 15 If as a result of the removal PA more information is needed, the ERPM should proceed to Module B to complete a removal SI.

5.3 Module B: Removal Site Inspections

5.3.1 Introduction

A removal SI is conducted after the PA to collect additional information regarding a site. As described in section 300.410 of the NCP, a removal SI may include on-site inspection, sampling, and collection of other data to augment a removal PA. To conduct a removal SI, a Health and Safety Plan (HASP) must be prepared before entering a site. Also, if environmental samples are to be taken, the ERPM must prepare a sampling and analysis plan. For further information on preparing HASPs and sampling and analysis plans, consult the DOE, EPA, and Occupational Safety and Health Administration (OSHA) regulations and guidances listed in the References section of the chapter.

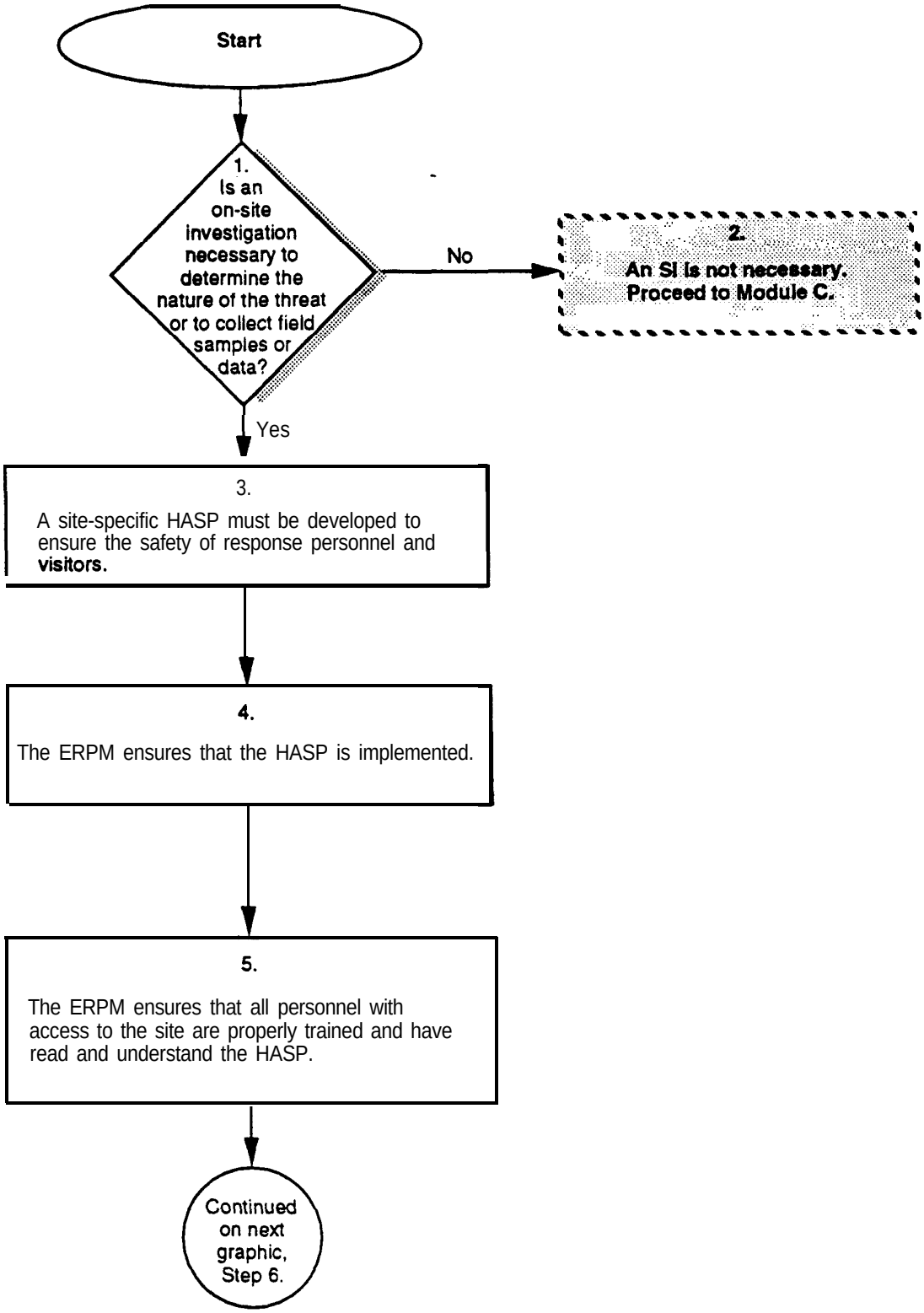
5.3.2 Milestones

In completing a removal SI, the ERPM should ask the following questions:

- **Has a site-specific HASP been developed?**
- **Are all personnel properly trained and have they read and understood the HASP?**
- **Is a sampling and analysis plan necessary?**
- **Does EPA need to review and approve the sampling and analysis plan?**
- **Have all the necessary data been collected?**

The collection of data for a removal SI continues until the ERPM determines either there is no release, the release does not qualify for a CERCLA action, or all necessary information is collected. The data collected during a removal SI should be documented and placed in the Administrative Record file. The following flowchart guides you through the process of completing a removal SI.

Figure 5.3(1)
Removal Site Inspections



5.3.3 Removal Site Inspections

Step 1 A removal SI is conducted when the ERPM needs more detailed information not readily available during the removal PA in order to complete an RSE. This more detailed information often requires on-site investigation and sample collection. However, sometimes a perimeter inspection may be sufficient. If sampling and analysis or an on-site investigation is not needed to determine the contaminants or hazards, then a removal SI is often unnecessary.

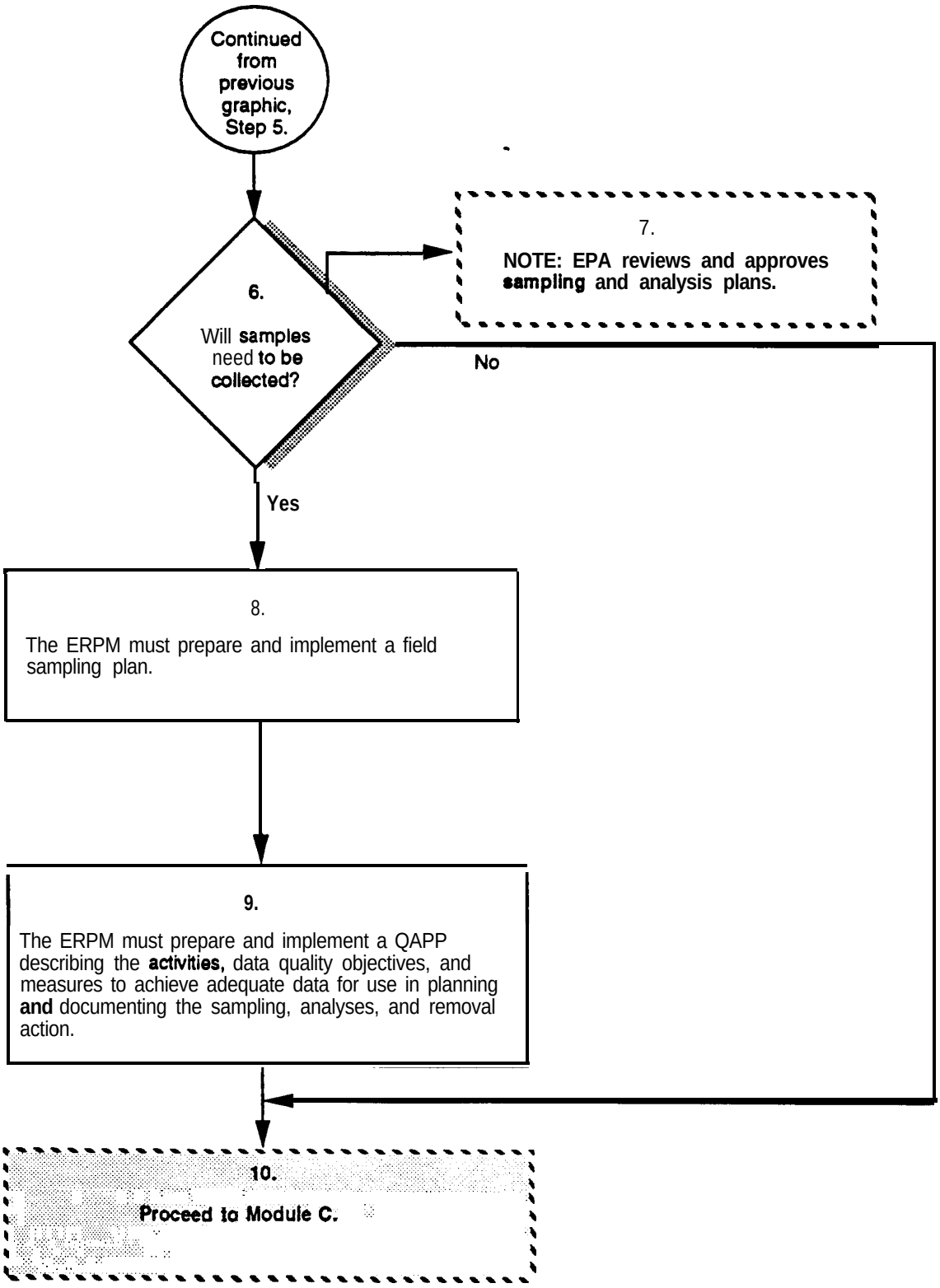
Step 2 In cases where sufficient information exists to make a removal action determination, a removal SI is not conducted. The ERPM can use the key information about the release or threat of release and the results of the removal PA to make the removal action determination (see Module C).

Step 3 An occupational safety and health program consistent with 29 CFR 1910.120 must be in place at a facility before any response action begins. Before entering a site, the ERPM must prepare a site-specific HASP. Existing HASPs and contingency plans (e.g., RCRA-permitted facility contingency plans) can be used as the basis for the HASP for the removal SI. The HASP prepared for an SI must contain information on the specific conditions and hazards at the site. For further information on preparing HASPs, the ERPM should consult the DOE, EPA, and OSHA regulations and guidance listed in the References section of this chapter.

Step 4 In accordance with sections 300.135 and 300.150 of the NCP, the ERPM is responsible for ensuring that the HASP is implemented before anyone enters the site. For further information on implementing HASPs, the ERPM should consult the EPA procedures for implementing HASPs list in the References section of this chapter.

Step 5 AU personnel entering a potential hazardous substance site must be specially trained, as required in 29 CFR 1910. In addition to appropriate training of all responders, the ERPM must ensure that the HASP has been read and understood by all personnel. Usually the ERPM requires all personnel to sign a form stating that they have received the appropriate training and read and understood the HASP. Initial and update training for DOE personnel is periodically offered by DOE's Office of Environment, Safety, and Health.

Figure 5.3(2)
Removal Site Inspections



Step 6 While the NCP specifically requites sampling and analysis plans for non-time-critical removal actions, a sampling and analysis plan should be completed before any samples are taken during any removal action. In non-emergency situations, a written plan can usually be prepared within the required response time frame. This plan assists in assuring that a sufficient quality and quantity of samples are taken to satisfy data needs. The sampling and analysis plan consists of a Field Sampling Plan and a Quality Assurance Project Plan (QAPP).

Step 7 Section 300.415(b)(4) of the NCP requires that sampling and analysis plans be reviewed and approved by EPA before conducting any sampling for non-time-critical removal actions (see Chapter 7). At certain sites, sampling and analysis may have been completed as part of a prior or ongoing remedial action. In these cases, the ERPM should use best professional judgment in determining if EPA should review and approve a separate sampling and analysis plan for a removal action.

Step 8 The ERPM should complete a field sampling plan before collecting any samples. This plan ensures that the appropriate number, type, and location of samples are taken and the appropriate analyses are performed. EPA has published several standard operating procedures for sampling in various media and for various types of contaminants (see Reference section of this chapter).

Step 9 The ERPM should prepare a QAPP to ensure that adequate data are collected and properly documented to support the removal action. EPA Directive 9360.4-01, "QA/QC Guidance for Removal Activities," provides guidance on the QAPP for removal actions. DOE Order 5700.6C, "Quality Assurance,'* requires facilities to have established procedures and work instructions, independent verification of quality, and QA objectives.

Step 10 The data collected during the removal SI must be documented as part of the overall documentation of the RSE. The data and information from the removal PA and removal SI must be included in the Administrative Record file, if a removal action is required. The NCP and EPA guidance do not prescribe the format for documenting a removal PA or SI. However, it is recommended that a written record of the data and the results and basis of the decision be prepared and included in the Administrative Record file. Preparation of RSE documentation should not impede taking action to respond at a site. The requirements for documenting a removal PA or RSE may be clarified in an FFA. After completing the RSE, the ERPM should proceed to Module C to determine the need and urgency of a removal action.

5.4 Module C: Removal Action Determinations

54.1 Introduction

The ERPM should use this module to determine the appropriateness and urgency of a removal action. This determination is made after reviewing the removal PA/SI, the factors for conducting a removal action outlined in section 300.415(b) of the NCP, and other relevant information. As a result of this determination, one of the following actions will be appropriate:

- Initiate emergency removal action (see Chapter 4)
- Initiate time-critical removal action (see Chapter 6)
- Initiate non-time-critical removal action (see Chapter 7)
- Consider the need for a remedial action
- Determine no action is appropriate under CERCLA authority.

The results of the removal action determination should be documented in the final Action Memorandum (see Chapter 4, Module C) and be reflected in the final RSE.

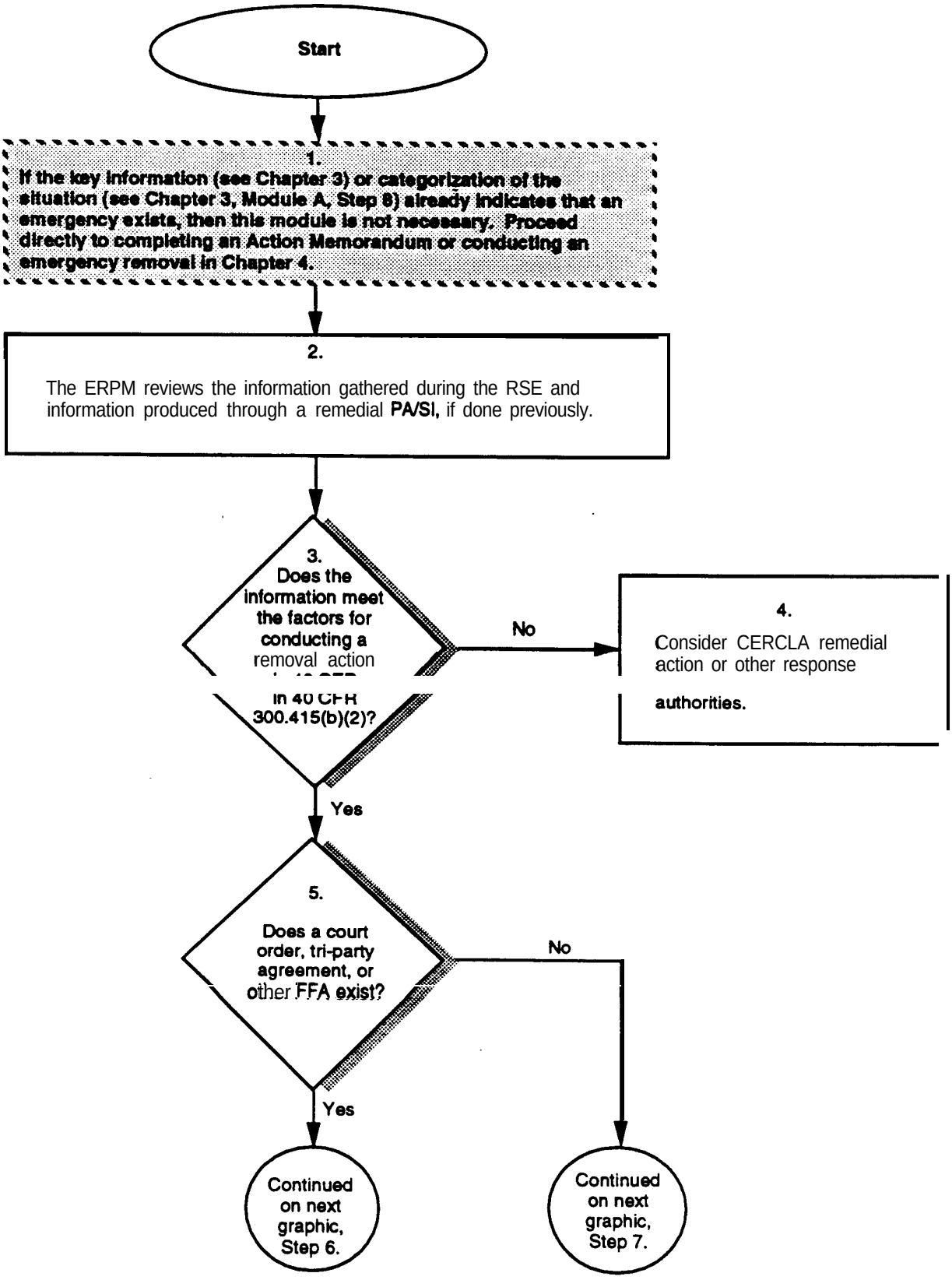
54.2 Milestones

In determining whether the RSE has been completed and the need to conduct a removal action, the ERPM should ask the following questions:

- **Have all necessary data been collected during the RSE?**
- **Does the data indicate that a removal action should be conducted?**
- **Are there any site-specific agreements in place regarding removal actions?**
- **When must the response begin to ensure the safety and health of the public and workers or to protect the environment?**

The ERPM determines the urgency of the response based on best professional judgment and the information that is available through the PA/SI. The following flowchart guides you through the process of determining whether a removal action is warranted.

Figure 5.4(1)
Removal Action Determinations



5.4.3 Removal Action Determinations

Step 1 In many emergency situations, the key information that is gathered (see Chapter 3) will indicate that an emergency exists. Indicators that an emergency exists include (but are not limited to) ongoing fire/explosion and reports of illness, injury, or death.

Categorization of the event in accordance with DOE Order 5000.3B may also indicate that an emergency exists, as described in section 7.a.(1) of the Order. In these situations, the ERPM may decide to initiate an emergency removal action immediately. Chapter 4 describes the procedures for completing an Action Memorandum and conducting a removal action in emergency situations.

Step 2 The ERPM makes the determination for conducting a removal action. To make this determination, the ERPM reviews the RSE, any other information such as remedial evaluations, and current site conditions if different than earlier reports. All previously collected data should be re-evaluated with respect to data quality.

Step 3 The ERPM reviews the available information and the factors for conducting a removal action listed in section 300.415(b)(2) of the NCP (see Chapter 1). This review may reveal that: (1) the situation at the site does not require any action; (2) required actions cannot be completed within the statutory time limits on removal actions and an exemption is not applicable; (3) required actions may not be authorized under the applicable FFA or interagency agreement (IAG) (see also Step 5); (4) CERCLA authority does not apply or, (5) a removal action should be completed.

Step 4 If the release or threat of release does not meet one or more of the factors set forth in section 300.415(b)(2) but a response to the release may still be appropriate, the ERPM should consider addressing site conditions using CERCLA remedial authority. The ERPM may also refer to Chapter 3, Module C, to determine if cleanup authorities other than CERCLA apply to the release.

Step 5 Facility-specific agreements (e.g., tri-party agreements) may contain clauses relevant to conducting removal actions or responding to certain types of incidents.

Step 6 Facility-specific agreements should be reviewed thoroughly to ensure that all actions comply with these agreements. Specifically, these agreements may preclude the use of removal authority or may establish rigorous schedules for planning a response.

Step 7 There are no specific regulatory criteria or established guidelines for determining the urgency of a response. Based on the available information, the ERPM should use best professional judgment to determine the urgency of the response. The urgency of the response determines whether the action is an emergency, time-critical, or non-time-critical removal action. Specific regulatory requirements exist for conducting each type of removal action.

Step 8 A non-time-critical removal action is appropriate when there is at least six months of planning time before on-site activities must begin. On-site activities must begin before a significant risk to human health, welfare, or the environment occurs or as soon as one is discovered.

Step 9 As noted earlier, if a situation is an emergency, the removal action should begin immediately. However, new information (e.g., presence of a previously undetected toxic chemical or explosive) may change the status of the removal action at any time. Historically, most removal actions begin within a few weeks or months in order to mitigate the hazard. Time-critical removal actions are taken to respond to situations with less than a six-month planning period. Emergency removal actions require a response within hours or days.

Step 10 The ERPM should proceed to Chapter 6 for guidance on time-critical removal actions.

Step 11 The ERPM should proceed to Chapter 7 for guidance on non-time-critical removal actions.

Step 12 The ERPM should refer to Chapter 4 for guidance on emergency removal actions.

5.5 Summary Milestones for Chapter 5

		YES	NO	N/A
Module A	**In completing a removal PA, the ERPM should ask the following questions:**			
	Can the source and nature of the release or threat of release be identified?			
	Can the nature of the threat to public health be described?			
	Can the magnitude of the threat be described?			
	Is another party already undertaking an appropriate response?			
	Has other relevant infoxmation about the release been considered?			
	Has sufficient information been collected to determine if a removal action is warranted, or is a removal SI necessary?			
Module B	**In completing a removal SI, the ERPM should ask the following questions:**			
	Has a site-specific HASP been developed?			
	Are all personnel properly trained and have they read and understood the HASP?			
	Is a sampling and analysis plan necessary?			
	Does EPA need to review and approve the sampling and analysis plan?			
	Have all necessary data been collected?			

		YES	NO	N/A
Module C	**In determining whether the RSE has been completed and the need to conduct a removal action, the ERPM should ask the following questions:**			
	Have all necessary data been collected during the RSE?			
	Does the data indicate that a removal action should be conducted?			
	Are there any site-specific agreements in place regarding removal actions?			
	When must the response begin to ensure the safety and health of the public and workers, or to protect the environment?			

5.6 Sample Scenarios

This chapter described the steps for conducting a removal PA and SI in accordance with the NCP. It has also aided in determining the urgency of the response. The ERPM should also refer to Chapter 4, Module A, for information on conducting an RSE in emergency situations. The following five scenarios provide examples to increase your understanding of the RSE process.

Scenario 1: Chlorine gas is reported emanating from a chemical storage building at a water purification plant at a DOE facility. The ERPM quickly determines that chlorine is stored in the building, and considering the high toxicity of chlorine gas, the ERPM makes the determination that an emergency removal is warranted. Facility operations personnel have been evacuated. The ERPM considers the removal PA complete and initiates an emergency removal action.

Scenario 2: Burned drums containing an unknown substance are discovered while workers are installing new water lines. The ERPM responds by conducting a record search and interviewing key witnesses. Because this removal PA did not sufficiently identify types and levels of contamination and pathways of migration, a removal SI was conducted. The ERPM conducts the SI by developing a HASP, preparing a sampling and analysis plan, and directing a sampling team. The barrels are found to contain a Resource Conservation and Recovery Act (RCRA) hazardous waste. Based on the toxicity of the waste, the questionable integrity of the barrels, and the current low risk of exposure, the ERPM determines that a time-critical removal action is necessary. This will allow for proper planning of the response and enable the site to be cleaned up quicker and for less cost than a remedial action.

Scenario 3: During a CERCLA remedial action to clean up an evaporation pit, a pool of a black oily substance is discovered. The substance is found to contain polychlorinated biphenyls (PCBs) and is leaking into a nearby dry creek bed. The ERPM is contacted and uses the information from the remedial studies to determine that an emergency removal action should be taken to address immediate threats at the site.

Scenario 4: Following discovery by facility personnel of a fish kill in a river adjacent to a DOE facility, the ERPM is notified. The ERPM investigates and fmds the DOE facility is exceeding its National Pollution Discharge and Elimination System (NPDES) permit. The ERPM refers the problem to facility personnel for correction and compliance with the Clean Water Act (CWA). In addition, the ERPM ensures that the river and river bed suffered no on-going or permanent damage, and, therefore, does not conduct a removal action. However, the DOE facility makes the requited notifications to appropriate state and federal officials under the CWA and state law.

Scenario 5: A study of facility records indicates two previously undiscovered evaporation pits may exist. The ERPM continues examining the records, interviews facility workers, and conducts an on-site inspection leading to the discovery of the pits. The pits are determined to contain a CERCLA hazardous substance. The ERPM then determines that due to the pits remote location and low toxicity that a non-time-critical removal action is appropriate.

5.7 References

1. Code of Federal Regulations, Title 29, Part 1910, Occupational Safety and Health Standards.
2. Code of Federal Regulations, Title 40, Part 300, National Oil and Hazardous Substances Pollution Contingency Plan (NCP).
3. Code of Federal Regulations, Title 40, Part 302, Designation, Reportable Quantities, and Notification.
4. Code of Federal Regulations, Title 40, Part 311, Worker Protection.
5. Code of Federal Regulations, Title 40, Part 355, Emergency Planning and Notification.
6. 42 U.S.C. §1251 *et. seq.* The Federal Water Pollution Control Act (FWPCA) as amended by the Clean Water Act (CWA).
7. 42 U.S.C. §2011 *et. seq.* The Atomic Energy Act of 1954 (AEA).
8. 42 U.S.C. §2601 *et. seq.* The Toxic Substances Control Act (TSCA).
9. 42 U.S.C. §2701 *et. seq.* The Oil Pollution Act of 1990 (OPA).
10. 42 U.S.C. §6901 *et. seq.* The Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments (HSWA).
11. 42 U.S.C. §7901 *et. seq.* The Uranium Mill Tailings Radioactive Control Act of 1978 (UMTRCA).
12. 42 U.S.C. §9601 *et. seq.* The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA).
13. U.S. EPA. Integrated Health and Safety Standard Operating Practice (OSWER Publication No. 9285.0-01). 1992.
14. U.S. EPA. Standard Operating Safety Guidelines (OSWER Publication No. 9285.1-03) (Supercedes OSWER Publication No. 9285.1-01C). Washington, DC: U.S. EPA, 1992.
15. U.S. EPA. Superfund Removal Procedures: Revision Number Three (OSWER Publication No. 9360.0-03B). Washington, DC: U.S. EPA, December 1988.
16. U.S. EPA. Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures (Interim Final) (OSWER Publication No. 9360.4-01). Washington, DC: U.S. EPA, April 1990.
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18. U.S. EPA. Compendium of ERT Surface Water and Sediment Sampling Procedures (OSWER Publication No. 9360.4-03). Washington, DC: U.S. EPA, January 1991.

19. U.S. EPA. Compendium of ERT Field Analytical Procedures (OSWER Publication No. 9360.4-04). Washington, DC: U.S. EPA, 1992.
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22. U.S. EPA. Compendium of ERT Waste Sampling Procedures (OSWER Publication No. 9360.4-07). Washington, DC: U.S. EPA, January 1991.
23. U.S. EPA. Compendium of ERT Toxicity Testing Procedures (OSWER Publication No. 9360.4-08). Washington, DC: U.S. EPA, January 1991.
24. U.S. EPA. Removal Program: Representative Soil Sampling Guidance (OSWER Publication No. 9360.4-10). Washington, DC: U.S. EPA, 1992.
25. U.S. EPA. Scope of the CERCLA Petroleum Exclusion Under Sections 101(14) and 104(a)(2) (OSWER Publication No. 9838.1). Washington, DC: U.S. EPA, July 31, 1987.
26. U.S. EPA. Hazardous Waste Operations and Emergency Response: Uncontrolled Hazardous Waste Sites and RCRA Corrective Actions. Washington, DC: U.S. EPA, April 1991.
27. U.S. EPA. Health and Safety Audit Guidelines from SARA Title I, Section 126. U.S. EPA, 540-G-89010.
28. U.S. DOE. Order 5000.3. Reactor and Non-Reactor Nuclear Facility Emergency Planning, Preparedness and Response Program for DOE Operations. Washington, DC: U.S. DOE, August 13, 1991.
29. U.S. DOE. Order 5000.3B: Occurrence Reporting and Processing of Operations Information. Washington, DC: U.S. DOE, March 3, 1992.
30. U.S. DOE. Order 5400.4: The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Requirements. Washington, DC: U.S. DOE, October 6, 1988.
31. U.S. DOE Order 5500.1B. Emergency Management System. Washington, DC: U.S. DOE, April 30, 1991.
32. U.S. DOE. Order 5700.6C. Quality Assurance. Washington, DC: U.S. DOE, September 23, 1986.
33. U.S. DOE. Emergency Planning and Community Right-to-Know Act (EPCRA) (DOE/EH/0181P). Washington, DC: U.S. DOE, March 1991.
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